



HANTAVIRUS PULMONARY SYNDROME (HPS)

Fact Sheet

Agents: Hantaviruses, including Sin Nombre virus, Black Creek Canal virus, Bayou virus, New York virus, and Monongahela virus (in United States).

Brief Description: Hantavirus pulmonary syndrome, commonly referred to as HPS, is a zoonotic febrile illness that can become complicated by acute respiratory distress syndrome (ARDS), respiratory failure, and shock. The typical prodrome (symptoms indicating onset of disease) consists of fever, chills, myalgia, headache, and gastrointestinal symptoms. Typical clinical laboratory findings include hemoconcentration, a shift in the white blood cell count, thrombocytopenia, circulating immunoblasts, and hypoalbuminemia. The case fatality rate is 35%.

Reservoir: New World rats and mice, family Muridae, subfamily Sigmodontinae (in particular, the deer mouse serves as the major reservoir of Sin Nombre virus). Humans are an accidental host.

Mode of Transmission: Primarily by inhalation of aerosolized rodent excreta. Virus is present in urine, feces, and saliva of persistently infected asymptomatic rodents. Indoor exposures in closed, poorly ventilated homes and vehicles with visible rodent infestation are especially prominent.

Incubation Period: Has not been completely defined but is thought to be approximately 2 weeks with a range of a few days to 6 weeks.

Clinical Case Definition: An illness characterized by one or more of the following clinical features:

- A febrile illness (i.e., temperature $>101.0^{\circ}\text{F}$ ($>38.3^{\circ}\text{C}$)) corroborated by bilateral diffuse interstitial edema, a clinical diagnosis of ARDS, radiographic evidence of noncardiogenic pulmonary edema, or unexplained respiratory illness resulting in death, and occurring in a previously healthy person, or
- An unexplained respiratory illness resulting in death, with an autopsy examination demonstrating noncardiogenic pulmonary edema without an identifiable cause.

Laboratory Criteria for Diagnosis:

- Detection of hantavirus-specific immunoglobulin M or rising titers of hantavirus-specific immunoglobulin G, or
- Detection of hantavirus-specific ribonucleic acid sequence by polymerase chain reaction (PCR) in clinical specimens, or
- Detection of hantavirus antigen by immunohistochemistry (IHC) in lung biopsy or autopsy tissues.

Diagnostic Testing: Serology, PCR, and IHC will be conducted at the Centers for Disease Control and Prevention ONLY in coordination with the Georgia Public Health Laboratory (GPHL) in Decatur and the Epidemiology Section.

Case Classification:

Confirmed: a clinically compatible case that is laboratory confirmed.

Period of Communicability: Person-to-person transmission has not been associated with any HPS cases in the U.S. However, it has been well documented for Andes virus in South America.

Vaccination: There is no vaccine for HPS. Control measures involve elimination of contact with rodent excreta.

Treatment: For confirmed cases of HPS, treatment consists of intensive respiratory care management, avoiding overhydration that might exacerbate pulmonary edema, and cardiotoxic drugs and pressors to prevent shock.

Investigation: Identify source of rodent exposure and control rodent populations. Spray disinfectant (such as dilute bleach solution) prior to cleaning. Cleaning should be done with a wet mop moistened with disinfectant. Animal trapping (but not live trapping) is recommended. Consultation with experts in the field of hantavirus infection is indicated in every case of suspected or confirmed hantavirus infection.

Reporting: Report cases **IMMEDIATELY** by phone to your local health department, District Health Office, or the State Epidemiology Section at 404-657-2588. If calling after regular business hours, it is very important to report cases through the Epidemiology Branch answering service (770-578-4104). After a verbal report has been made, please transmit the case information electronically through the State Electronic Notifiable Disease Surveillance System

(SENDSS) at <http://sendss.state.ga.us>, or complete and mail a GA Notifiable Disease Report Form (#3095).

References:

1. Centers for Disease Control and Prevention. Case definitions for infectious conditions under public health surveillance. *MMWR* 1997;46(RR10):1-55.
2. Centers for Disease Control and Prevention. Update: Hantavirus Pulmonary Syndrome – United States, 1999. *MMWR* 1999;48(24):521-525.
3. Chin J, ed. Hantavirus Pulmonary Syndrome. In: Control of Communicable Diseases Manual. 17th ed. Washington, DC: American Public Health Association, 2000: 234-236.
4. McCaughey C, Hart CA. Hantaviruses. *J Med Microbiol* 2000;49(7):587-99.
5. Centers for Disease Control and Prevention. Hantavirus pulmonary syndrome—United States: updated recommendations for risk reduction. *MMWR* 2002;51(No. RR-9):1-4.

Links:

CDC's All About Hantaviruses website, <http://www.cdc.gov/hantavirus/index.html>